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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,944	09/16/2003	Warren M. Farnworth	2269-5700US (02-1183.00/U)	3861
24247	7590	08/09/2004	EXAMINER	
TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110			BREWSTER, WILLIAM M	
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 08/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/663,944

Applicant(s)

FARNWORTH, WARREN M.

Examiner

William M. Brewster

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 26-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 010904.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Claims 26-47 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 29 June 2004.

Applicant's election without traverse of claims 1-25 in the reply filed on 29 June 2004 is acknowledged.

Information Disclosure Statement

The information disclosure statement filed 9 January 2004 to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The Miller references and the web pages are not present in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 -11, 14-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Ketia, JP Publication No. 04-024987.

Keita anticipates a method for forming electrically conductive vias through a substrate, comprising: in fig. 3A, forming at least one precursor hole through the substrate 6; introducing unconsolidated dielectric material 10 into said at least one precursor hole; and, in figs. 3B and 3C, selectively consolidating portions of said unconsolidated dielectric material at locations adjacent to a periphery of said at least one precursor hole to form a layer of an insulative coating 11 on surfaces of said at least one precursor hole, in fig. 2, PURPOSE and CONSTITUTION;

limitations from claim 11: wherein said forming comprises forming said at least one precursor hole to have one of a substantially cylindrical shape, a substantially frustoconical shape, an hourglass shape, and a bulging center: bulging as a result of curving, PURPOSE;

limitations from claims 2, 4, 14: wherein said introducing comprises introducing an unconsolidated UV-curable dielectric material 10 into said at least one precursor hole, CONSTITUTION;

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limitations from claims 3, 15: in fig. 3B, wherein said selectively consolidating comprises exposing portions of said UV-curable dielectric material to UV radiation in the form of a laser beam: He-Cd laser, CONSTITUTION;

limitations from claim 16: in fig. 3A, wherein said introducing comprises dispensing said unconsolidated dielectric material 10 into said at least one precursor hole 6;

limitations from claims 5, 17: wherein said introducing comprises lowering a level of the substrate relative to a level of a volume of unconsolidated dielectric material: solidification creates a more compact form of the curable material which hence shrinks and lowers the volume of material;

limitations from claims 6, 18: in fig. 3B, wherein said selectively consolidating comprises directing an energy beam, He-Cd laser, onto said portions of said unconsolidated dielectric material, CONSTITUTION;

limitations from claims 7, 19: the method further comprising: repeating said introducing and said selectively consolidating at least once to form another layer of said insulative coating, last sentence of CONSTITUTION;

limitations from claims 8, 9, 20, 21: in fig. 2, the method further comprising: removing unconsolidated dielectric material remaining within said at least one precursor hole: to form through hole, PURPOSE; wherein, upon said removing, a via hole 4 that extends through said insulative coating is exposed;

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12, 13, 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keita as applied to claims 1 -11, 14-21 above, and further in view of Bloemeke et al., U.S. Publication No. 2004/0112881 A1.

Although Keita's through holes putatively would carry conductive material for interconnection, but the translated portions do not specify it. Bloemeke does specify conductors. Bloemeke teaches limitations from claims 12-13; in figs. 1A-3B, wherein said forming includes drilling through the substrate 26, wherein said forming further includes trepanning the substrate, ABSTRACT;

limitations from claim 11: wherein said forming comprises forming said at least one precursor hole to have one of a substantially cylindrical shape, a substantially frustoconical shape, an hourglass shape, and a bulging center: in fig. 1A, frustoconical 12;

limitations from claims 22-25; the method further comprising: introducing conductive material into said via hole; wherein said introducing conductive material comprises introducing at least one of polysilicon, a metal, a metal alloy, a conductive elastomer, and a conductor-filled elastomer into said via hole: metal; wherein said introducing conductive material comprises at least one of physical vapor depositing,

chemical vapor depositing, electrolytic plating, electroless plating, and immersion plating; plating; wherein said introducing conductive material comprises dispensing said conductive material: dispensing the conductive metal for plating, p. 4, ¶ 56. Bloemeke gives motivation in the ABSTRACT. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Bloemeke's process with Keita's invention would have been beneficial because the invention provides for vias with no undercutting.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William M. Brewster whose telephone number is 571-272-1854. The examiner can normally be reached on Full Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

5 August 2004
WB

William M. Brewster